Title: Simple adsorption of Candida rugosa lipase onto multi-walled carbon nanotubes for sustainable production of the flavor ester geranyl propionate

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Abstract: In this study, geranyl propionate was enzymatically synthesized from geraniol and propionic acid using Candida rugosa lipase immobilized on acid functionalized multi-walled carbon nanotubes. The efficiency of the CRL-MWCNTs biocatalysts to catalyze the esterification production of geranyl propionate (solvent log P, alcohol:acid molar ratio and thermal stability) was compared with the free CRL for parameters. The use of CRL-MWCNTs in n-heptane (log P 4.0) and alcohol:acid molar ratio of 5:1 resulted in a 2-fold increased conversion frequency as compared to the free CRL for the production of geranyl propionate, in addition to a noteworthy 2-fold enhanced thermal stability.